Claims

1. A method for transmitting signals in a circuit board (1), in which at least one optical channel (2) is formed, to which an optical signal is input by means of an optical transmitter (4) and the optical signal input to the optical channel (2) is received with at least one optical receiver (6), **characterized** in that the optical channel (2) is designed in such a manner that at least two focal points (3.1, 3.2) are formed in it, and that the optical transmitter (4) is placed substantially in connection with one focal point (3.1, 3.2), and the optical receiver (6) is placed substantially in connection with a second focal point (3.1, 3.2).

2. The method according to claim 1, **characterized** in that the optical channel (2) is designed substantially in the form of an ellipse.

3. The method according to claim 1, **characterized** in that the optical channel (2) is designed substantially in the form of two opposite parabolas, and that the opening directions of the parabola forms are directed towards each other.

4. The method according to claim 1, **characterized** in that the optical channel (2) is designed in such a manner that it comprises at least two ellipse forms in such a manner that each ellipse form has one shared focal point (3.1) and the second focal point (3.2, 3.3, 3.4) of each ellipse form is separate from other focal points.

5. The method according to any of the claims 1 to 4, **characterized** in that at least one mid-layer (1.2) is formed in the circuit board (1) and that the optical channel (2) is placed in the mid-layer (1.2) of the circuit board (1).

6. A circuit board (1), in which at least one optical channel (2), at least one optical transmitter (4) in an optical connection with the optical channel (2), and at least one optical receiver (6) in an optical connection with the optical channel (2) are formed, **characterized** in that the optical channel (2) is designed in such a manner that it comprises at least two focal points (3.1, 3.2), and that the optical

transmitter (4) is arranged to be placed substantially in connection with one focal point (3.1) and the optical receiver (6) is arranged to be placed substantially in connection with one other focal point (3.2).

7. The circuit board (1) according to claim 6, **characterized** in that the optical channel (2) is designed substantially in the form of an ellipse.

8. The circuit board (1) according to claim 6, **characterized** in that the optical channel (2) is designed substantially in the form of two opposite parabolas, and that the opening directions of the parabola forms are directed towards each other.

9. The circuit board (1) according to claim 6, **characterized** in that the optical channel (2) is designed in such a manner that it comprises at least two ellipse forms in such a manner that each ellipse form has one shared focal point (3.1) and the second focal point (3.2, 3.3, 3.4) of each ellipse form is separate from other focal points.

10. The circuit board (1) according to any of the claims 6 to 9, **characterized** in that at least one mid-layer (1.2) is formed in the circuit board (1) and that the optical channel (2) is placed in the mid-layer (1.2) of the circuit board (1).

11. The circuit board (1) according to any of the claims 6 to 10, **characterized** in that the optical transmitter (4) is a strongly diverging light emitting diode, such as an RC-LED.

12. The circuit board (1) according to any of the claims 6 to 11, **characterized** in that the optical transmitter (4) is placed in the optical channel at the location of the first focal point, and that the optical receiver is placed in the optical channel (2) at the location of the second focal point.

13. The circuit board (1) according to any of the claims 6 to 11, **characterized** in that the optical transmitter (4) is placed on the surface of the circuit board (1) at the location of the first focal point, that in the optical channel (2) a first beam inverter (7.1) is formed in the first

focal point to invert the signals directed from the optical transmitter (4) to the first focal point substantially to the direction of the main level of the optical channel, that the optical receiver (6) is placed on the surface of the circuit board (1) at the location of the second focal point, and that in the optical channel (2) a second beam inverter (7.2) is formed in the second focal point to invert the signals coming from the optical channel to the second focal point towards the optical receiver (6).